

What is claimed is:

1. A method of producing a monolithic reactive porous support, comprising:

adding a component containing a reactive site to a sol-gel reaction solution, and

inducing sol-gel transformation accompanying phase separation to obtain the reactive porous support having a backbone substantially formed of metaloxane bonds and hydrocarbon chains, open pores, and reactivity on a surface thereof.

2. A method of producing a monolithic reactive porous support according to claim 1, wherein said open pores have an average diameter of 100 nm or greater and a volume fraction of 20% or greater.

3. A method of producing a monolithic reactive porous support according to claim 1 or 2, wherein a porous material to become said reactive porous support includes a porous material formed in a column shape with a covered side surface, in a capillary with a diameter of 1 mm or less, or in a groove with a width of 100 μ m or less formed in a substrate, or combination thereof to form a continuous flow structure.

4. A method of producing a monolithic reactive porous support according to one of claims 1 to 3, wherein said reactive site includes a noble metal catalyst; a metal oxide catalyst; a biochemical catalyst such as an enzyme; a protein or polypeptide inducing an antigen-antibody reaction; a multiple bond capable of an addition reaction; an organic functional group capable of

a ring-opening reaction such as an epoxy ring; an organic functional group capable of a poly-condensation reaction; a acidic or basic functional group; an ion exchange functional group; a donor or acceptor of a charge transfer reaction; a functional group capable of forming a complex; a functional group containing a complex metal; and a combination thereof.

5. A method of producing a monolithic reactive porous support according to one of claims 1 to 3, wherein said reactive site is a surface of a fine particle coexisting during a sol-gel reaction.

6. A support having a backbone structure obtained by the method according to one of claims 1 to 5, said backbone structure having the reactive site on a surface thereof and pores with a diameter of 100 nm or greater.

7. A system device including a combination of a plurality of the monolithic reactive porous supports according to claim 6.